[All dates in September unless otherwise specified]

River and station	Flood stage	Above flood stages—dates		Crest	
		From—	To—	Stage	Date
ATLANTIC DRAINAGE					
	Feet			*Feet*	
Santee: Rimini, S. C.	12	29	(1)		
Congaree: Columbia, S. C.	15	28	29	19.1	28
Broad: Blairs, S. C.	15	27	29	25.0	28
Saluda:					
Pelzer, S. C.	7	26	29	11.2	27
Chappells, S. C.	14	26	(1)	30.2	28
Savannah:					
Calhoun Falls, S. C.	6	27	27	8.7	27
Augusta, Ga.	32	26	29	46.3	27
Broad: Carlton, Ga.	11	17	17	11.0	17
		26	28	19.2	27
Altamaha:					
Charlotte, Ga.	15	28	(1)		
Everett City, Ga.	10	29	(1)		
Oconee: Milledgeville, Ga.	22	27	28	25.2	27
Ocmulgee: Lumber City, Ga.	15	29	30	15.6	29
EAST GULF DRAINAGE					
Chattahoochee: Norcross, Ga.	16	27	28	19.5	27
Etowah: Canton, Ga.	11	26	26	14.0	26
MISSISSIPPI DRAINAGE					
French Broad: Asheville, N. C.	4	27	28	5.0	27
Big Pigeon: Newport, Tenn.	6	26	26	[2] 8.0	26
Elk: Fayetteville, Tenn.	14	14	14	14.7	14
Canadian: Logan, N. Mex.	4			6.0	23
WEST GULF DRAINAGE					
Nueces: Cotulla, Tex.	15	22	24	18.4	23
Rio Grande:					
Albuquerque, N. Mex.	4			4.5	23
San Marcial, N. Mex.	2			[3] 6.0	23
PACIFIC DRAINAGE					
Colorado: Parker, Ariz.	7	(4)		11.9	June 2.
				9.4	Sept. 27–28
Gila: Kelvin, Ariz.	5			8.0	24

[1] Continued at end of month.
[2] Approximately.
[3] Last reading taken; levee collapsed shortly afterwards.
[4] Continued from last month.

EFFECT OF WEATHER ON CROPS AND FARMING OPERATIONS, SEPTEMBER, 1929

By J. B. KINCER

General summary.—During the first decade the agricultural situation was materially improved by fairly general rains, especially with respect to the condition of the soil for preparation of winter grain seeding in the principal producing States, and many late crops were benefited also, but in general the rains came too late to be of widespread, marked benefit. In the Atlantic area moisture was helpful in general, but some areas were still too dry, while there was again too much rain in parts of the Southeast; the Gulf area, including the southern half of Texas, continued dry, on the whole. Droughty conditions were effectively relieved in most sections between the Mississippi River and the Rocky Mountains, but crops were mostly too far advanced to be helped. Severe drought continued over the far Northwest.

During the second decade there was more or less severe frost over a rather wide area, extending from Pennsylvania, the northern part of the Ohio Valley States, and much of Iowa northward. Considerable damage resulted to late crops and tender vegetation in some sections, but harm was rather spotted. Showers were helpful to minor crops in parts of the Southeast, but in other sections they were not needed and were mostly unfavorable for cotton in the eastern belt. It was still too dry for plowing and seeding winter grains in a good many places, especially in parts of the Ohio Valley and more generally in the Northwest and northern Pacific States.

During the last decade there were damaging and heavy rains in the Southeast, attending a tropical storm that moved northeastward over that section. Rains were frequent and in many places heavy, resulting in the washing of fields, flooding of lowlands, and damage to outstanding crops. Rainfall was still needed in some areas, the sections needing moisture most being Michigan, the northern portions of Indiana and Illinois, and Missouri and eastern Kansas. The drought was also largely unrelieved in the grain areas of the Pacific Northwest. The warm, sunny weather in the interior and Southwest favored rapid maturity of late crops and only local frost damage was reported.

Small grains.—During the first decade cold weather, with considerable snow in elevated northwestern sections, was unfavorable for late harvest and threshing, while plowing was still retarded in much of the Lake region and in the far Northwest because of dry soil. Soil moisture was improved, however, in most of the main winter-wheat States. During the second decade the soil was still too dry and hard for plowing in the northern parts of Indiana and Illinois, much of Missouri, and south-central and southeastern Kansas, while this work was hampered in Wisconsin and Minnesota. Satisfactory advance was made in the Great Plains region, except as noted above, but in much of the Northwest it was too dry for extensive operations. During the last decade there was some improvement in conditions for plowing and seeding winter wheat, but parts of the Southwest continued dry. Good progress in seeding was made in the eastern Ohio Valley, but parts of Indiana and Illinois continued dry. In Kansas seeding was nearly done in the western two-thirds, but this work was delayed in the east by dry soil.

Corn.—The corn crop was too far advanced during the first decade to benefit materially from the rains, although some of the late crop was helped. In Iowa early corn was too mature and the late too badly fired for material benefit, while in eastern Kansas most corn was mature and it was largely beyond frost damage in the northern Great Plains. During the second decade corn matured slowly, due to cool weather, from the Mississippi Valley eastward; in the western belt the crop was largely matured. Frosts were rather general in some northern Ohio Valley sections, with more or less damage to the late crop, while in Iowa the frost killed the leaves of corn, but penetrated husks only in local areas. During the last decade corn was reported practically all beyond frost danger in the western portion of the belt. In Iowa conditions were only fair for drying, but advance toward maturity was very good. At the close of the month much was still green in central and southern Illinois and 10 to 20 days were still required in Missouri.

Cotton.—During the first decade the severe drought that had prevailed in the western Cotton Belt was effectively relieved in Oklahoma, the northern half of Texas, and western Arkansas, but the rains came too late to greatly benefit the crop. Progress was very good in parts of Texas, but was mostly poor, with continued complaints of shedding and premature opening of small bolls. Progress ranged from fair to good in Oklahoma, with shedding and premature opening checked; east of the Mississippi River there was further deterioration because of dry weather in interior sections, while there was too much rain in other parts.

During the second decade conditions were favorable in the western belt and unfavorable in the east. In the western belt, where the period was sunny and practically

rainless, conditions were practically ideal for picking and ginning; in Texas the crop was largely made. The weather interfered with opening of bolls and delayed picking and ginning in the eastern belt; some damage to staple was reported where rains were heaviest.

Excellent conditions for picking and ginning prevailed during the last decade in the western belt and this work made rapid progress. In Oklahoma picking made satisfactory advance, although much of the crop was irregular with short and low-grade staple. In Texas, the crop was practically made, with poor prospects for a top crop. In the eastern belt heavy to excessive rains and floods were very unfavorable, especially in the Carolinas, Georgia, and parts of Alabama, with picking practically at a standstill.

Miscellaneous crops.—Pastures showed improvement in some sections, but in others they are short and poor. Livestock held up well. Potato digging was well advanced at the close of the month, and, except for some more or less local harm from frost, truck did well. Sugar-beet digging progressed and sugar cane was generally favored. Nearly all tobacco was cut in Kentucky at the close of the month. Much fruit was blown from the trees in Florida by the tropical storm; deciduous fruits were doing well in general, and the weather generally favored fruit drying in the Pacific Coast States.

WEATHER OF THE ATLANTIC AND PACIFIC OCEANS

551.506 (26/.7)

NORTH ATLANTIC OCEAN

By F. A. YOUNG

The outstanding meteorological features of the month for the North Atlantic Ocean were the very severe tropical hurricane during the last decade, that will be described in the October issue, and the secondary disturbance along the coasts of the Southern Atlantic States that occurred during the same period.

Charts VIII to XV cover the period from the 23d to 30th, inclusive. Charts will also be prepared for the first few days in October, to appear in the next issue of the REVIEW, showing the track of the tropical disturbance as it moved northward along the American coast. Reports from a number of vessels are given in the table, but none of them apparently encountered the full strength of the storm, which at times reached hurricane force, as they were able to take advantage of the storm warnings and thus escape its maximum intensity.

Disturbances of extratropical origin were somewhat below the normal, as over the steamer lanes gales were not reported on more than four days in any 5° square, the maximum occurring between the forty-fifth and fiftieth parallels and thirty-fifth and forty-fifth meridians.

Fog was reported on from 12 to 14 days over the Grand Banks; on from 8 to 13 days along the American coast, north of the thirty-fifth parallel, and on from 3 to 6 days over the middle and eastern sections of the northern steamer lanes.

On the 1st and 2d a moderate disturbance was over the eastern section of the steamer lanes, with northeasterly gales between the forty-fifth and fiftieth parallels and twentieth and thirtieth meridians.

A well-developed LOW that was central on the 4th near 50° N., 38° W., remained nearly stationary during the next three days, when moderate to strong gales prevailed over an area extending on the 5th from the twenty-fifth to forty-fifth meridians.

From the 7th to 11th comparatively high pressure and slight gradients, accompanied by moderate weather, was the rule over the ocean as a whole, although a few vessels in different locations encountered moderate gales.

On the 12th a LOW central near 52° N., 32° W., was responsible for winds of force 7 to 9 that occurred on that day as well as on the 13th over the region between the thirtieth and forty-fifth meridians.

From the 14th to 18th there ensued another period of moderate weather, except that on the 17th westerly to southerly gales were reported off the north coast of Scotland.

A moderate depression that was off the coast of eastern Florida on the 18th developed into a severe disturbance as it moved northward, and from the 20th to 23d moderate to strong northeast gales swept the coast between Hatteras and New York.

On the 21st a well-developed LOW was over the Shetland Islands, and on the 22d a moderate depression was central near 50° N., 40° W.

As stated before, Charts VIII to XV cover the period from the 23d to 30th, inclusive, and, besides giving an idea of the movement of the tropical disturbance, also show the conditions over the eastern section of the steamer lanes, where heavy weather occurred on the 23d and again on the last three days of the month.

TABLE 1.—*Averages, departures, and extremes of atmospheric pressure at sea level, 8 a. m. (seventy-fifth meridian). North Atlantic Ocean, September, 1929*

Stations	Average pressure	Departure	Highest	Date	Lowest	Date
	Inches	*Inch*	*Inches*		*Inches*	
Belle Isle, Newfoundland	29.93	[1] +0.03	30.34	27th	29.34	11th.
Halifax, Nova Scotia	30.12	[2] +0.07	30.62	22d	29.74	11th.
Nantucket	30.11	[2] +0.03	30.50	22d	29.90	14th.
Hatteras	30.07	[2] −0.01	30.24	1st [3]	29.92	18th.
Key West	29.89	[2] −0.07	30.00	4th	29.40	28th.
New Orleans	29.96	[2] −0.04	30.08	1st	29.72	30th.
Cape Gracias, Nicaragua	29.84	[1] −0.07	29.90	4th	29.78	20th.
Turks Island	30.00	[2] +0.02	30.12	3d	29.94	18th. [3]
Bermuda	30.13	[2] +0.05	30.28	13th	29.90	25th.
Horta, Azores	30.18	[1] +0.02	30.44	20th	29.86	1st.
Lerwick, Shetland Islands	29.86	[1] +0.02	30.28	25th	29.12	21st.
Valencia, Ireland	30.13	[1] +0.14	30.36	7th [3]	29.90	3d.
London	30.11	[1] +0.11	30.50	25th	29.71	20th.

[1] From normals shown on Hydrographic Office Pilot Chart, based on observations at Greenwich mean noon, or 7 a. m. seventy-fifth meridian time.
[2] From normals based on 8 a. m. observations.
[3] And on other date.

Results for Julianehaab, Greenland, are not given, as seven days observations were missing from that station.